

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | | |
|---|---|--|---|
| Applicant's or agent's file reference 12806 | FOR FURTHER ACTION | | see Form PCT/ISA/220 as well as, where applicable, item 5 below. |
| International application No. PCT/NZ2005/000050 | International filing date (<i>day/month/year</i>) 18 March 2005 | (Earliest) Priority Date (<i>day/month/year</i>) 18 March 2004 | |
| Applicant SHAW, David Peter | | | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **5** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II).

3. ☐ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. **1**

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Box No. IV Text of the Abstract (Continuation of item 5 of the first sheet)

nethod of treating sleep apnoea and/or snoring in a patient, which includes the steps of providing apparatus for electrically stimulating one or more afferent fibres of the nerve (2), positioning said apparatus (12, 13) on or in close proximity to said nerve; and activating said apparatus to stimulate one or more afferent fibre of said nerve (2).

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2005/000050

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: A61N 1/36, A61N 1/08, A61N 1/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI - IPC A61M, A61B, A61N & Keywords (+apn+, stimulat+, nerve, electrode, sensor) and like terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X | Baer et al. "Functional Electric stimulation of the phrenic nerve and its clinical significance" Nordic Medical Journal 1992; v107(6-7): Pages 191-194 TRANSLATED ABSTRACT, PMID 1608749 (PubMed) | 1-10 |
| X | WO 1992019318 A1 (CYBERONICS INC) 12 November 1992 WHOLE DOCUMENT | 1-10 |
| X | EP 1306104 A2 (MEDTRONIC INC) 2 May 2003 WHOLE DOCUMENT | 1-10 |
| X | WO 2003086531 A2 (MEDTRONIC INC) 23 October 2003 WHOLE DOCUMENT | 1-10 |

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

| | |
|---|--|
| * Special categories of cited documents: | |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "E" earlier application or patent but published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "O" document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family |
| "P" document published prior to the international filing date but later than the priority date claimed | |

Date of the actual completion of the international search

24 May 2005

Date of mailing of the international search report

14 JUN 2005

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2005/000050

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|---|---|-----------------------|
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | WO 2000006249 A2 (CASE WESTERN RESERVE UNIV) 10 February 2000 WHOLE DOCUMENT | 1-10 |
| X | EP 702977 B1 (MEDTRONIC) 19 March 2003 WHOLE DOCUMENT | 1-10 |
| X | US 6269269 B1 (OTTENHOFF et al.) 31 July 2001 WHOLE DOCUMENT | 1-10 |
| X EPAU | Henry et al. "Phrenic Nerve Pacing—An alternative to positive pressure ventilation: The required nursing care" August 1993. AACN Clinical Issues, vol. 4 no. 3, pg 573 - 577 | 1-8 |
| L | Sériès et al. "Assessment of Upper Airway Dynamics in Awake Patients with Sleep Apnea Using Phrenic Nerve Stimulation" February 8 2000. American Journal of Respiratory and Critical Care Medicine, vol 162 2000, pg 795 – 800. (cited to demonstrate state of the art in phrenic nerve stimulation) | |
| L | Fodstad, H. "The Swedish Experience in Phrenic Nerve Stimulation" January-February 1987. Pace, Part II vol. 10, pg 246-251. (cited to demonstrate state of the art in phrenic nerve stimulation) | |
| L | Baer et al. "Phrenic Nerve Stimulation for Central Ventilatory Failure with Bipolar and Four-Pole Electrode Systems" August 1990. Pace, vol 13, pg 1061-1072. (cited to demonstrate state of the art in phrenic nerve stimulation) | |
| L | Verin et al. "Discriminative power of phrenic twitch-induced dynamic response for diagnosis of sleep apnea during wakefulness" September 6, 2002. Journal of Applied Physiology, 94:31-37, 2003. (cited to demonstrate state of the art in phrenic nerve stimulation) | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/NZ2005/000050

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | | Patent Family Member | | | |
|---|----------|----------------------|------------|----|---------|
| WO | 03086531 | US | 2003195571 | | |
| US | 6269269 | US | 6251126 | | |
| WO | 9219318 | AU | 19040/92 | CA | 2103138 |
| | | US | 5335657 | EP | 0584211 |
| EP | 1306104 | EP | 0743076 | US | 5591216 |
| EP | 0702977 | JP | 8224318 | US | 5540732 |
| WO | 0006249 | AU | 51301/99 | US | 6587725 |
| Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001. | | | | | |
| END OF ANNEX | | | | | |